

CLAIMS

1. (currently amended) A processing chamber for a substrate, the chamber configured to operate at a positive pressure, comprising:

a load port slot, the load port slot providing access for the substrate into and out of the chamber;

a chamber door, the chamber door positioned inside the chamber, the chamber door configured to seal against an internal surface of the chamber thereby blocking access through the load port slot, wherein an internal pressure of the chamber assists in sealing the chamber door against the internal surface of the chamber; and

a door actuating mechanism, the door actuating mechanism configured to move the door along a door path, the door path positioned at an angle to a path to be traversed by the substrate, the door actuating mechanism including a single door opening cylinder having a first and second end, the first end of the door opening cylinder affixed to a bottom surface of a cylinder bracket, the second end of the door opening cylinder affixed to a top surface of a door actuating bar, the door actuating mechanism further including first and second door closing cylinders being affixed to a top surface of the cylinder bracket.

2. (original) The processing chamber as recited in claim 1, wherein the chamber door includes a first actuator for closing the door and a second actuator for opening the door.

3. (original) The processing chamber as recited in claim 2, wherein a size of the second actuator prevents the door from opening when the internal pressure of the chamber is at or above a defined pressure.

4. (original) The processing chamber as recited in claim 1, wherein the chamber door forms a seal against the internal surface of the by compressing an o-ring.

5. (original) The processing chamber as recited in claim 2, further including:  
a third actuator, the third actuator configured to prevent one of the first and second actuators from moving the chamber door.

6. (currently amended) A chamber for processing a semiconductor substrate, the chamber configured to operate while pressurized, comprising:

a port, the port providing access for the semiconductor substrate into and out of the chamber;

a moveable door, the door configured to utilize a pressure differential between an internal pressure of the chamber and an external pressure outside of the chamber to seal the port, wherein the door forms a seal with an internal surface of the chamber enclosing the port; and

a control mechanism, the control mechanism configured to transition the moveable door between an open position and a sealed position, the transition between the open position and the sealed position occurring at an angle to the axis of a path to be traversed by the semiconductor substrate, the control mechanism including a single door opening cylinder having a first and second end, the first end of the door opening cylinder affixed to a bottom surface of a cylinder bracket, the second end of the door opening cylinder affixed to a top surface of a door actuating bar, the door actuating mechanism further including first and second door closing cylinders being affixed to a top surface of the cylinder bracket.

7. (original) The chamber as recited in claim 6, wherein an interlock provides assurance that the chamber door is closed prior to pressurizing the chamber.

8. (original) The chamber as recited in claim 6, wherein the moveable door is positioned inside the chamber.

9. (original) The chamber as recited in claim 6, further comprising:  
at least one rod, the at least one rod having a first and second end, the first end attached to the chamber door, the second end attached to a bar, the bar in communication with at least one actuator.

10. (original) The chamber as recited in claim 9, wherein the at least one actuator includes an actuator for closing the door and an actuator for opening the door.

11. (original) The chamber as recited in claim 6, wherein the moveable door includes one of a mechanical safety, an electrical safety and a software safety.

Claims 12-21 (cancelled)

22. (new) The processing chamber as recited in claim 1, wherein the door mechanism is not exposed to an internal cavity of the chamber when the chamber door is sealed against the internal surface of the chamber.

23. (new) The chamber as recited in claim 6, wherein the control mechanism is not exposed to an internal cavity of the chamber when the chamber door is in the sealed position.